

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant	: Gennadi FINKELSHTAIN et al.	Confirmation No.:	5103
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Serial No.	: 10/757,849	Examiner:	Toomer, Cephia D
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For	: STORAGE-STABLE FUEL CONCENTRATE		

SUPPLEMENTED APPEAL BRIEF UNDER 37 C.F.R. § 41.37

Commissioner for Patents
U.S. Patent and Trademark Office
Customer Service Window, Mail Stop Appeal Brief - Patents
Randolph Building
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Sir:

This Supplemented Appeal Brief is in response to the Notification of Non-Compliant Appeal Brief mailed July 28, 2008. Inasmuch as the one month period for reply is originally set in the Notification to expire on August 28, 2008, this Supplemented Appeal Brief is being filed by the initial due date for response. However, if any extension of time is necessary, this is an express request for any necessary extension of time and authorization to charge any required extension of time fee or any other fees which may be required to preserve the pendency of the present application to Deposit Account No. 19-0089.

The present Supplemented Appeal Brief differs from the original Appeal Brief only in that under the heading “**III. STATUS OF CLAIMS**” it is additionally stated that claim 140 is objected to under 37 CFR 1.75(c) as allegedly being of improper dependent form.

This Appeal is from the Examiner's Final Rejection of claims 70-97, 99, 101-116, 119-130 and 132-143 set forth in the Office Action mailed from the U.S. Patent and Trademark Office on December 14, 2007.

A Notice of Appeal in response to the December 14, 2007 Final Office Action was filed on March 14, 2008.

Appellants note that the fee for filing an Appeal Brief as set forth in 37 C.F.R. § 41.20(b)(2) was paid on May 1, 2007 when the first Appeal Brief was filed. Additionally, on May 14, 2008 the U.S. Patent and Trademark Office was authorized to charge the difference between the then required fee for filing an Appeal Brief and the fee effective on May 1, 2007 (\$10.00) as well as any additional fees which may be deemed necessary for entering the present Appeal Brief to Deposit Account No. 19-0089.

Inasmuch as the original Appeal Brief was filed within the initial two-month period prescribed by 37 C.F.R. § 41.37(a)(1), set to expire May 14, 2008, it is believed that no extension of time is required. However, the Patent and Trademark Office is authorized to charge any fee necessary for maintaining the pendency of this application, including any appeal or extension of time fees that may be necessary, to Deposit Account No. 19-0089.

TABLE OF CONTENTS

I.	REAL PARTY IN INTEREST	4
II.	RELATED APPEALS AND INTERFERENCES	4
III.	STATUS OF CLAIMS	4
IV.	STATUS OF AMENDMENTS	5
V.	SUMMARY OF CLAIMED SUBJECT MATTER	5
VI.	GROUND OF REJECTION TO BE REVIEWED ON APPEAL	8
VII.	ARGUMENTS	9
VIII.	CONCLUSION	28
	CLAIMS APPENDIX	29
	EVIDENCE APPENDIX	42
	RELATED PROCEEDINGS APPENDIX	43

I. REAL PARTY IN INTEREST

The real party in interest in this appeal is More Energy Ltd. of Lod, Israel. The corresponding assignments were recorded in the U.S. Patent and Trademark Office on October 25, 2005 at REEL 017139, FRAME 0039 and on April 23, 2007 at REEL 019192, FRAME 0210.

II. RELATED APPEALS AND INTERFERENCES

Appellants, Appellants' representative or the Assignee are not aware of any other prior and pending appeals, interferences or judicial proceedings which may be related to, directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

III. STATUS OF CLAIMS

The status of the claims is as follows:

Claims 70-99, 101-117 and 119-143 are pending in this application.

Each of claims 70-97, 99, 101-116, 119-130 and 132-143 is indicated as rejected in the Final Office Action mailed December 14, 2007.

Claims 98, 117 and 131 are objected to as being dependent upon a rejected base claim but are indicated to be allowable in independent form including all of the limitations of the base claim and the intervening claims.

Claim 140 is objected to under 37 CFR 1.75(c) as allegedly being of improper dependent form.

Claims 1-69, 100 and 118 are cancelled.

The rejection of each of claims 70-97, 99, 101-116, 119-130 and 132-143 is under appeal. Claims 70-97, 99, 101-116, 119-130 and 132-143 involved in the appeal are reproduced in the Claims Appendix attached hereto.

IV. STATUS OF AMENDMENTS

No Amendment has been filed subsequent to the Final Office Action mailed December 14, 2007.

V. SUMMARY OF CLAIMED SUBJECT MATTER

A. Claim 70

Independent claim 70 is drawn to a process for preparing a metal hydride containing liquid from a storage-stable concentrate, said liquid being for use as a fuel in a direct liquid fuel cell. The process comprises combining (a) a concentrate which comprises at least one metal hydride compound and a polar solvent and has a hydroxide ion concentration of at least about 7 moles per liter, not more than about 2 % of the at least one metal hydride compound decomposing when the concentrate is stored for 4 weeks at about 25°C, and (b) a solvent which may be the same as or different from the polar solvent of the concentrate in an amount of at least about 15 % by volume of the concentrate.

See, e.g., page 4, lines 17-23 and page 12, lines 6-10 from the bottom of the present specification.

B. Claim 84

Independent claim 84 is drawn to a process for producing a packaged combination for making a fuel for use with a direct liquid fuel cell, which fuel comprises at least one metal hydride compound and a polar solvent and has a hydroxide ion concentration of not higher than about 7 moles per liter. The process comprises providing a container having a first compartment and at least one second compartment, partially or completely filling the first compartment with a concentrate which differs from the fuel at least by comprising only a part of the polar solvent and by having a hydroxide ion concentration which is higher than the hydroxide ion concentration of the fuel, and partially or completely filling the at least one second compartment with an amount of polar solvent which in combination with the concentrate will afford the fuel.

See, e.g., specification at page 5, lines 18-27 and the passage from page 10, line 4 from the bottom to page 11, line 7.

C. Claim 101

Independent claim 101 is drawn to a container for providing a fuel which is suitable as fuel for a direct liquid fuel cell. The fuel comprises at least one metal hydride compound and a polar solvent and has a hydroxide ion concentration of not higher than about 7 moles per liter. The container comprises a first compartment and at least one second compartment. The first compartment contains a concentrate which comprises at least one metal hydride compound and a polar solvent and has a hydroxide ion concentration which is higher than the hydroxide ion concentration of the fuel. The at least one second compartment contains a solvent which may be

P24712.A14

the same as or different from the polar solvent of the concentrate. Combining the solvent in the at least one second compartment and the concentrate in the first compartment affords the fuel.

See, e.g., specification at page 6, lines 1-8 from the bottom, the passage from page 10, line 4 from the bottom to page 11, line 7 and page 12, lines 6-10 from the bottom.

D. Claim 119

Independent claim 119 is drawn to a packaged combination for providing a fuel which is suitable as fuel for a direct liquid fuel cell. The combination comprises a first container and at least one second container. The first container contains a concentrate which comprises at least one metal hydride compound and a polar solvent and has a hydroxide ion concentration which is higher than the hydroxide ion concentration of the fuel. The at least one second container contains a solvent which may be the same as or different from the polar solvent of the concentrate and together with the concentrate in the first container affords the fuel.

See, e.g., specification at page 8, lines 1-9, the passage from page 10, line 4 from the bottom to page 11, line 7 and page 12, lines 6-10 from the bottom.

E. Claim 132

Independent claim 132 is drawn to a method of reducing the decomposition of a fuel for use as a fuel for a direct liquid fuel cell during storage of the fuel. The method comprises storing the fuel as a concentrate and diluting the concentrate to prepare the fuel only before using the fuel. The concentrate comprises at least one metal hydride compound, a polar solvent, and at

P24712.A14

least one hydroxide ion providing compound. After storing the concentrate for 4 weeks at about 25°C not more than about 2 % of the at least one metal hydride compound has decomposed.

See, e.g., page 8, lines 18-22 in combination with, e.g., page 2, lines 4-8 from the bottom of the present specification.

F. Claim 135

Independent claim 135 is drawn to a container for making a fuel which is suitable as fuel for a direct liquid fuel cell. The container comprises a first compartment and at least one second compartment. The first compartment contains a concentrate which comprises at least one metal hydride compound and a polar solvent and has a hydroxide ion concentration which is higher than the hydroxide ion concentration of the fuel. The at least one second compartment contains a solvent which may be the same as or different from the polar solvent of the concentrate and together with the concentrate in the first compartment affords the fuel. Further, after storing the concentrate for 4 weeks at about 25°C not more than about 2 % of the at least one metal hydride compound has decomposed.

See, e.g., specification at page 6, lines 1-8 from the bottom in combination with, e.g., page 2, lines 4-8 from the bottom and page 12, lines 6-10 from the bottom.

VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

The broad issue under consideration is:

Whether claims 70-97, 99, 101-116, 119-130 and 132-143 are properly rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Tsang, U.S. Patent No. 6,818,334 B2 {P24712 00504670.DOC}

(hereafter “TSANG”) in view of Amendola et al., US 2002/0083643 A1 (hereafter “AMENDOLA”) and in particular, whether the disclosures of TSANG and AMENDOLA are sufficient to establish a *prima facie* case of obviousness of the subject matter of claims 70-97, 99, 101-116, 119-130 and 132-143.

VII. ARGUMENTS

A. Citation of Authority

Obviousness

The appropriate starting point for a determination of obviousness is stated in *Graham v. John Deere Co.*, 383 U.S. 1, 17, 148 U.S.P.Q. 459, 466 (1966):

Under § 103, the scope and content of the prior art are to be determined; differences between the prior art and the claims at issue are to be ascertained and the level of ordinary skill in the pertinent art resolved. Against this background, the obviousness or nonobviousness of the subject matter is determined.

The test of obviousness *vel non* is statutory and requires a comparison of the claimed subject matter as a whole with the prior art to which the subject matter pertains. *In re Brouwer*, 77 F.3d, 422, 37 U.S.P.Q. 2d 1663 (Fed. Cir. 1996); *In re Ochiai*, 71 F.3d 1565, 37 U.S.P.Q. 2d 1127 (Fed. Cir. 1995).

Often, it will be necessary to look to interrelated teachings of multiple patents; the effects of demands known to the design community or present in the marketplace; and the background knowledge possessed by a person having ordinary skill in the art to determine whether there was an apparent reason to combine the known elements in the fashion claimed by the patent at issue.

This analysis should be made explicit. There must be some articulated reasoning with some

rational underpinning to support the legal conclusion of obviousness. *KSR Int'l Co. v. Teleflex Inc.*, 127 S. Ct. 1727, 1740-1741. "A patent composed of several elements is not proved obvious merely by demonstrating that each of its elements was, independently, known in the prior art. Although common sense directs one to look with care at a patent application that claims as innovation the combination of two known devices according to their established functions, it can be important to identify a reason that would have prompted a person of ordinary skill in the relevant field to combine the elements in the way the claimed new invention does." *Id.*, at 1741.

"If the Examiner fails to establish a *prima facie* case, the rejection is improper and will be overturned." *In re Rijckaert*, 9 F.3d, 1532, 28 U.S.P.Q.2d, 1956 (Fed. Cir. 1993), citing *In re Fine*, 837 F.2d 1071, 1074, 5 U.S.P.Q.2d 1596, 1598 (Fed. Cir. 1988).

B. Claims 70-97, 99, 101-116, 119-130 and 132-143 Are Not Properly Rejected under 35 U.S.C. § 103(a) As Being Unpatentable Over TSANG in View of AMENDOLA

1. Summary of Rejection

The Final Office Action mailed December 14, 2007 does not set forth specific reasons as to why claims 70-97, 99, 101-116, 119-130 and 132-143 are allegedly rendered obvious by TSANG in view of AMENDOLA. However, in the preceding non-final Office Action mailed from the U.S. Patent and Trademark Office on August 24, 2007 it is alleged that TSANG "discloses production of two solutions, one comprising metal borohydride, water and hydroxide, the other comprising water, which are then combined thus diluting each and which then forms a mixture used as a fuel in a fuel cell". The rejection concedes that TSANG does not specifically teach the claimed proportions and does not suggest the pH recited in the present claims. In this

regard, the rejection relies on paragraphs [0033] and [0032] of AMENDOLA which allegedly suggest that a higher pH is more effective and allegedly also suggest starting with a concentrated solution and adding water during use. Regarding the claimed package or container, the rejection in the preceding non-final action alleges that it would have been obvious to one of ordinary skill in the art “to package or container the obvious storage stable concentrate along with a package or container containing the necessary solvent for obtaining the optimal fuel mixture and appropriate instructions because: (1) such avoids problems of dosing the proper amounts of the two components by the end user; (2) such avoids problems of dosing with impure solvent.”

2. Claims 70-97, 99, 101-116, 119-130 and 132-143 Are Not Properly Rejected as Unpatentable over TSANG in View of AMENDOLA

a. The Teachings of TSANG and AMENDOLA

TSANG and AMENDOLA have in common that they relate to the use of a borohydride solution as a source of hydrogen gas for use in a hydrogen gas consuming device such as, e.g., a hydrogen-based fuel cell i.e., not to the use of a borohydride solution (or any other metal hydride solution) which serves as the actual fuel (i.e., without prior conversion to hydrogen) for a direct liquid fuel cell.

In particular, unlike the diluted metal hydride concentrate of the present invention, the borohydride solutions of TSANG are not intended to be used as such to operate a fuel cell, but are used only indirectly in that after addition thereto of a (metal) catalyst which catalyzes the hydrolysis of the borohydride according to the equation shown in, e.g., col. 2, line 58 of TSANG

to generate hydrogen gas, the hydrogen gas thus generated is transferred to a fuel cell where it is used as the actual fuel.

The same applies to the solutions of AMENDOLA. According to its abstract, AMENDOLA relates to the use of borohydride based solutions as a hydrogen storage source and a catalyst system to release hydrogen therefrom. An equation similar to that in col. 2 of TSANG is shown in paragraph [0028] of AMENDOLA.

Further, paragraph [0032] of AMENDOLA on which the rejection appears to rely states (emphases added):

Since two water molecules are consumed for each borohydride molecule according to reaction (1), the concentration of all the remaining components (the cation, the borate, and the borohydride) will increase as the reaction continues. Therefore, twice as many water molecules as borohydride molecules are needed to sustain a constant rate of reaction. This excess water can be provided to the reaction in two ways: (i) charging the initial metal hydride solution with excess water, i.e., starting with a dilute solution, or (ii) adding more water from a separate source during or after the reaction. The second alternative is preferred to minimize the initial starting weight of water plus borohydride. Adding water from a separate source during or after the reaction is viable because the main byproduct of hydrogen oxidation in a hydrogen-consuming device is water. A hydrogen-consuming device, as used herein, means a device that uses hydrogen as a fuel, e.g., a fuel cell, combustion engine, or a gas turbine. Thus, water generated from the hydrogen-consuming device can be added to the borohydride solution. Assuming that water is recycled from the fuel cell or engine, 8 weight units of hydrogen (4 from water and 4 from borohydride) can come from 22 weight units of lithium borohydride. The resulting theoretical hydrogen conversion ratio is 36.36% by weight of hydrogen per unit of borohydride ($8 \div 22 \times 100$). Therefore, the hydrogen generation system can include a slurry tank to store the borohydride and an adjacent mixing tank to add additional water obtained from the exhaust of the hydrogen consuming device, thereby allowing complete reaction of the borohydride while preventing the borohydride solution from drying out, i.e., preventing the components of the borohydride solution from precipitating out of solution.

Particularly the underlined passages of paragraph [0032] of AMENDOLA make it clear that AMENDOLA neither teaches nor suggests providing a borohydride containing concentrate

and diluting the concentrate with a polar solvent to prepare the final fuel for a (direct liquid) fuel cell, let alone providing a packaged combination of the concentrate and the solvent. In fact, according to AMENDOLA the solvent (water) for the dilution of the water-depleted borohydride solution is not even present at the beginning, but is continuously generated by the oxidation of the hydrogen gas inside a hydrogen-consuming device (such as, e.g., a fuel cell) and is then recycled to the borohydride solution from which a part of the hydrogen which constitutes H₂O originated (the other part originates from the borohydride).

In other words, paragraph [0032] of AMENDOLA relates to a situation which is specific to the hydrogen generation reaction described therein (as well as to that described in TSANG), i.e., the more hydrogen has already been generated by the hydrolysis of the borohydride the higher will be the concentration of the borohydride in the solution due to the fact that the reaction consumes two moles of water per one mole of borohydride. Apparently, this has nothing to do with the initial preparation of a fuel concentrate which is diluted before use to prepare a fuel for a direct liquid fuel cell.

The disclosure in paragraph [0033] of AMENDOLA, also relied on by the Examiner, does not add anything to the disclosure of TSANG, either. A 40 % alkali hydroxide or alkaline metal hydroxide solution as mentioned in claim 1 of TSANG can safely be assumed to have a pH of greater than 14, i.e., the most preferred pH according to paragraph [0033] of AMENDOLA.

Further, another characteristic that TSANG and AMENDOLA have in common is that they both relate to operations on a very large (industrial) scale. For example, the passage from col. 4, line 35 to col. 5, line 11, TSANG states (emphases added):

The best mode to practice the embodiments disclosed herein is to meter the NaBH_4 solution (Solution A) and the second aqueous solution (Solution B) independently by two separate mechanical devices, i.e., pumps, into a chamber that contains the catalyst. ... To further accelerate the reaction rate, the reaction chamber may also be heated externally by a capacitor or other electronic device.

FIG. 1 depicts schematically a PEM fuel cell 10 employing the teachings herein. ...

Oxygen and/or air is introduced to the cathode 12, while hydrogen gas is introduced to the anode 14. Hydrogen gas is generated in a reaction chamber 20, using a catalyst (not shown). In the reaction chamber, aqueous sodium borohydride, exposed to the catalyst, generates hydrogen gas and sodium borate, as described above. Hydrogen from the reaction chamber 20 is then introduced into the PEM fuel cell 10.

In accordance with the teachings herein, Solution A, comprising sodium borohydride in water, and Solution B, comprising water, and the optional water-soluble additive, are combined in the reaction chamber 20. Solution A is contained in reservoir 22, while Solution B is contained in reservoir 24. A metering pump/valve 26 meters out the desired volume of Solution A into the reaction chamber 20, while metering pump/valve 28 meters out the desired volume of Solution B into the reaction chamber. Thus, Solutions A and B are metered separately from separate reservoirs 22, 24 and mixed within the reaction chamber 20.

In another embodiment, the reaction chamber is heated, using an external heating mechanism 30, to increase the reaction rate of the Solutions A and B in the presence of the catalyst. The temperature to which the reaction chamber is heated is advantageously less than the boiling points of the two solutions.

Clearly, the above passages in combination with Fig. 1 of TSANG refer to an operation on an industrial scale which involves two reservoirs for holding solutions A and B, two metering pumps/valves for metering solutions A and B, a reaction chamber, a device for transferring hydrogen gas from the reaction chamber to the PEM fuel cell and an optional external heating mechanism for the reaction chamber. Operating on such a large (industrial) scale does not render obvious (and in fact, teaches away from) employing “containers” (reservoirs) which hold solutions A and B and can be packaged together and/or combined in a single “container” because using (e.g., handling and/or transporting) such necessarily very large “containers” would be extremely burdensome, if not nearly impossible.

The same applies to AMENDOLA. For example, in paragraph [0032] of AMENDOLA reproduced above a slurry tank, a mixing tank and the recycling of water formed in the hydrogen-consuming device back to the hydrogen generation unit are mentioned. Using tanks and a recycling operation for water implies a scale of operation wherein using “containers” (tanks) which are packaged together and/or combined in a single “container” would be extremely burdensome, if not nearly impossible (and in any case very undesirable).

**b. TSANG in View of AMENDOLA Fails to Render Obvious
Claim 70**

According to independent claim 70 a metal hydride containing liquid for use as a fuel in a direct liquid fuel cell is made from a storage-stable concentrate by a process which comprises combining (a) the concentrate which comprises at least one metal hydride compound and a polar solvent and has a hydroxide ion concentration of at least about 7 moles per liter, not more than about 2 % of the at least one metal hydride compound decomposing when the concentrate is stored for 4 weeks at about 25°C, and (b) a solvent which may be the same as or different from the polar solvent of the concentrate in an amount of at least about 15 % by volume of the concentrate.

Appellants point out that the indication of the intended use of the diluted fuel concentrate recited in claim 70, i.e., as fuel for a direct liquid fuel cell, implies certain characteristics of the fuel (the metal hydride containing liquid) and the storage-stable fuel concentrate respectively, which are of no importance with respect to a fuel (concentrate) which is used merely for the

generation of hydrogen gas therefrom (as is the case with the “fuels” of TSANG and AMENDOLA).

For example, it is apparent that a fuel that is to be used directly (i.e., as such) in a fuel cell (without first generating hydrogen therefrom) must not contain components and impurities which would cause significant harm to the (interior of the) fuel cell and/or the feeding device for the fuel possibly associated therewith (e.g., corrosion) and/or would poison the oxidation catalyst of the anode of the liquid fuel cell (which catalyst is to catalyze, e.g., the reaction depicted in paragraph [0004] of the present specification and is to prevent, e.g., the reaction depicted in paragraph [0005] of the present specification (generation of hydrogen gas) to as high a degree as possible). In this regard, it is noted that according to col. 4, lines 1-19 of TSANG, especially solution B may contain a variety of additives which are potentially harmful if present in a fuel for a direct liquid fuel cell.

In contrast, a fuel that is used merely for the generation of hydrogen by catalytic hydrolysis of a metal hydride may contain components/impurities which would not usually be acceptable if the fuel were to be used directly inside the fuel cell (because essentially only the hydrogen gas will eventually reach the inside of the hydrogen-consuming fuel cell). In fact, it would appear that the only components/impurities in a metal hydride solution for the generation of hydrogen that might cause a problem are substances which can deactivate the catalyst that is to catalyze the hydrolysis of the borohydride.

In particular, the anodic oxidation catalyst of a direct liquid fuel cell is to catalyze, e.g., the reaction depicted in paragraph [0004] of the present specification and is to prevent, e.g., the reaction depicted in paragraph [0005] of the present specification (generation of hydrogen gas) to

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as high a degree as possible. The catalysts of TSANG and AMENDOLA, on the other hand, catalyze the (undesirable) reaction depicted in paragraph [0006] of the present specification.

In this regard, it further is noted that the noble metals which are conventionally employed as oxidation catalysts for the anode of a direct liquid fuel cell are platinum and palladium, most frequently platinum. While these noble metals can also be used in catalysts for the hydrolysis of a borohydride and the resultant generation of hydrogen gas, they are not the noble metals of choice for this purpose. This is evidenced, for example, by the Examples of TSANG wherein ruthenium is used as the hydrolysis catalyst (see also equation 2 in col. 2, line 58 of TSANG). According to AMENDOLA, ruthenium and rhodium are the preferred hydrolysis catalysts (see last sentence of paragraph [0040] of AMENDOLA), i.e., metals which are not preferred as oxidation catalysts for use in an anode of a direct liquid fuel cell. Moreover, it is apparent that a even if a noble metal can be used as both an (anodic) oxidation catalyst and as a hydrolysis catalyst, it will be present in different forms because an anodic oxidation catalyst for a direct liquid fuel cell which is also an effective hydrolysis catalyst and promotes the (undesirable) formation of hydrogen gas inside the direct liquid fuel cell would apparently be of only limited value.

Further, a fuel for use as a hydrogen gas generator may often have a much higher concentration of the active components thereof than a fuel that is supplied directly to a fuel cell and must be used therein as such. In other words, the viscosity of the fuel is much less of a concern when the fuel is to be used for the generation of hydrogen gas than when it is used directly as the fuel that is to be oxidized at the anode of a fuel cell. In other words, a high

viscosity fuel which would be unsuitable or at least very inconvenient for use in a direct liquid fuel cell may still be quite acceptable as a source for the generation of hydrogen.

Appellants submit that for at least all of the foregoing reasons, TSANG in view of AMENDOLA fails to render obvious the subject matter of present claim 70, and the Examiner has failed to establish a *prima facie* case of obviousness of claim 70 and the claims dependent therefrom over TSANG in view of AMENDOLA.

**c. TSANG in View of AMENDOLA Fails to Render Obvious
Claims 84, 101 and 135**

Independent claims 84, 101 and 135 have in common that they recite, *inter alia*, a container which comprises at least two compartments which contain the components of a fuel which is suitable for use as a fuel for a direct liquid fuel cell, i.e., a compartment which essentially contains a fuel concentrate and a compartment which essentially contains a dilutant for the fuel concentrate.

As set forth in section VII.B.2.c. above with respect to independent claim 70, TSANG in view of AMENDOLA fails to render obvious a fuel which is suitable for use as a fuel for a direct liquid fuel cell and the constituents thereof. For this reason alone, TSANG in view of AMENDOLA is also unable to render obvious the subject matter of claims 84, 101 and 135.

Further, as set forth in detail in section VII.B.2.a., both TSANG and AMENDOLA apparently relate to an operation on a large (industrial) scale where the use of a (large) combined “container” as recited in claims 84, 101 and 135 would clearly be inconvenient, if not nearly impossible (but in any case undesirable). In other words, in view of the large scale and the

resultant large volumes of liquids involved in the processes described by TSANG and AMENDOLA, there is no apparent reason but rather a disincentive for one of ordinary skill in the art to provide a combined “container” (reservoir or tank) which comprises both a compartment for a concentrate and at least one compartment for a dilutant. In line therewith, Fig. 1 of TSANG shows two separate “containers” (reservoirs). (The Figures of AMENDOLA do not show a second “container” (tank) for a dilutant at all.)

Additionally, if one were to assume, *arguendo*, that the processes described in TSANG/AMENDOLA are operated on a scale which would make the use of containers like those recited in the rejected claims feasible, it is not seen that this would be an economical process. The containers and thus, the amount of hydrogen that could be generated from the contents of these containers would necessarily be relatively small and would not justify the employment of sophisticated equipment that apparently is needed for transferring the generated hydrogen (i.e., a highly flammable gas) from the reaction chamber to a PEM fuel cell or any other hydrogen-consuming device.

The above facts constitute yet another reason why TSANG in view of AMENDOLA is also unable to render obvious the subject matter of claims 84, 101 and 135 and why the Examiner has also failed to establish a *prima facie* case of obviousness of the subject matter of claims 84, 101 and 135 over TSANG in view of AMENDOLA.

**d. TSANG in View of AMENDOLA Fails to Render Obvious
Claim 119**

Independent claim 119 is drawn to a packaged combination for providing a fuel which is suitable as a fuel for a direct liquid fuel cell and comprises at least one metal hydride compound and a polar solvent. The combination comprises a first container and at least one second container. The first container essentially contains a fuel concentrate and the at least one second container essentially contains a dilutant for the concentrate.

As set forth in section VII.B.2.c. above with respect to independent claim 70, TSANG in view of AMENDOLA fails to render obvious a fuel which is suitable for use as a fuel for a direct liquid fuel cell and the constituents thereof. For this reason alone, TSANG in view of AMENDOLA is also unable to render obvious the subject matter of claim 119.

Further, as set forth in detail in section VII.B.2.a., both TSANG and AMENDOLA apparently relate to an operation on a large (industrial) scale where the use of a packaged combination of two “containers” as recited in claim 119 would clearly be inconvenient, if not nearly impossible (and in any case undesirable). In other words, in view of the large scale and the resultant large volumes of liquids involved in the processes of TSANG and AMENDOLA, there is no apparent reason but rather a disincentive for one of ordinary skill in the art to provide a packaged combination of at least two “containers” (reservoirs or tanks) which comprises a “container” containing a concentrate and at least one second “container” containing a dilutant.

Additionally, if one were to assume, *arguendo*, that the processes described in TSANG/AMENDOLA are operated on a scale which would make the use of a packaged combination of containers like that recited in claim 119 feasible, it is not seen that this would be

an economical process. The containers and thus, the amount of hydrogen that could be generated from the contents of these containers would necessarily be relatively small and would not justify the employment of sophisticated equipment that apparently is needed for transferring the generated hydrogen (i.e., a highly flammable gas) from the reaction chamber to a PEM fuel cell or any other hydrogen-consuming device.

The above facts constitute yet another reason why TSANG in view of AMENDOLA is also unable to render obvious the subject matter of claim 119 and why the Examiner has also failed to establish a *prima facie* case of obviousness of the subject matter of claim 119 over TSANG in view of AMENDOLA.

**e. TSANG in View of AMENDOLA Fails to Render Obvious
Claim 132**

Independent claim 132 is drawn to a method of reducing the decomposition of a fuel for use as a fuel for a direct liquid fuel cell during the storage of the fuel. The method comprises storing the fuel as a concentrate and diluting the concentrate to prepare the fuel only before using the fuel. The concentrate comprises at least one metal hydride compound, a polar solvent, and at least one hydroxide ion providing compound. After storing the concentrate for 4 weeks at about 25°C not more than about 2 % of the at least one metal hydride compound has decomposed.

As set forth in section VII.B.2.c. above with respect to independent claim 70, TSANG in view of AMENDOLA fails to render obvious a fuel which is suitable for use as a fuel for a direct liquid fuel cell and the constituents thereof. For this reason alone, TSANG in view of AMENDOLA is also unable to render obvious the subject matter of claim 132.

f. TSANG in View of AMENDOLA Fails to Render Obvious Claims 99 and 102

Even if one were to assume, *arguendo*, that TSANG in view of AMENDOLA renders obvious the subject matter of independent claims 84 and 101, this would not apply to claim 99 (which depends from claim 84) and claim 102 (which depends from claim 101). Both of these claims recite that the container which comprises a fuel concentrate in a first compartment and (polar) solvent for diluting the fuel concentrate in at least one second compartment allows a mixing of the concentrate and the solvent inside the container.

As set forth in section VII.B.2.c. above TSANG does not teach or suggest, *inter alia*, a “container” (reservoir) which comprises a concentrate in a first compartment and (polar) solvent for diluting the concentrate in at least one second compartment. Moreover, even if one were to assume, *arguendo*, that TSANG teaches or suggests a corresponding “container”, it is not seen that TSANG teaches or suggests mixing the concentrate and the solvent inside this (theoretical) container.

AMENDOLA does not cure the deficiencies of TSANG in this regard. In fact, AMENDOLA does not even teach two “containers” which are filled with concentrate and dilutant for the concentrate.

For at least all of the foregoing reasons, the Examiner has failed to establish a *prima facie* case of obviousness of the subject matter of claims 99 and 102 as well.

**g. TSANG in View of AMENDOLA Fails to Render Obvious
Claims 105 and 106**

Even if one were to assume, *arguendo*, that TSANG in view of AMENDOLA renders obvious the subject matter of independent claim 101, this would not apply to claims 105 and 106 (both of which depend from claim 101). Both of these claims recite that in the container which comprises a fuel concentrate in a first compartment and (polar) solvent for diluting the fuel concentrate in at least one second compartment one of the compartments (the first compartment or the at least one second compartment) at least partially surrounds the other compartment (the at least one second compartment or the first compartment).

As set forth in section VII.B.2.c. above, TSANG does not teach or suggest, *inter alia*, a “container” (reservoir) which comprises a concentrate in a first compartment and (polar) solvent for diluting the concentrate in at least one second compartment. Even if one were to assume, *arguendo*, that TSANG teaches or suggests a corresponding “container”, it is not seen that TSANG teaches or suggests such a (theoretical) container wherein one compartment at least partially surrounds another compartment.

AMENDOLA does not cure the deficiencies of TSANG in this regard. In fact, AMENDOLA does not even teach two “containers” which are filled with a concentrate and dilutant for the concentrate.

For at least all of the foregoing reasons, the Examiner has failed to establish a *prima facie* case of obviousness of the subject matter of claims 105 and 106 as well.

**h. TSANG in View of AMENDOLA Fails to Render Obvious
Claim 139**

Even if one were to assume, *arguendo*, that TSANG in view of AMENDOLA renders obvious the subject matter of independent claim 101, this would not apply to claim 139 recites a process for filling a liquid fuel cell wherein the container of claim 101 (which comprises a fuel concentrate in a first compartment and solvent for diluting the fuel concentrate in at least one second compartment) is used as filling device for the fuel cell.

TSANG fails to disclose feeding any liquid (e.g., any of solutions A and B) directly in a PEM fuel cell or any other hydrogen-consuming device and for this reason alone, is unable to teach or suggest using a container which contains two different liquids such as, e.g., solutions A and B, in different compartments as feeding device for a fuel cell.

AMENDOLA does not cure the deficiencies of TSANG in this regard. In fact, AMENDOLA does not even teach two “containers” which are filled with a concentrate and dilutant for the concentrate and neither does AMENDOLA teach or suggest feeding any liquid into any of the hydrogen-consuming devices mentioned therein.

For at least all of the foregoing reasons, the Examiner has failed to establish a *prima facie* case of obviousness of the subject matter of claim 139 as well.

**i. TSANG in View of AMENDOLA Fails to Render Obvious
Claim 140**

Claim 140 depends from claim 84 and recites that the direct liquid fuel cell recited in claim 84 is a portable liquid fuel cell for use with a portable electric or electronic device.

As set forth in detail in section VII.B.2.c. above, both TSANG and AMENDOLA clearly relate to large-scale operations which involve equipment such as reservoirs, tanks, reaction chambers, pumps/valves, heating devices, equipment for transferring hydrogen gas from a reaction chamber to a hydrogen-consuming device, equipment for recycling water, etc. For this reason alone, TSANG in view of AMENDOLA is unable to render obvious a portable fuel cell which necessarily involves small-sized equipment and the handling of relatively small volumes of liquids, i.e., volumes which would in no way justify the operation of pumps, heating devices, gas transfer equipment, etc.

Accordingly, even if one were to assume, *arguendo*, that the subject matter of claim 84 is rendered obvious by TSANG in view of AMENDOLA, for at least all of the additional reasons set forth above this would clearly not apply to claim 140, wherefore the Examiner has additionally and independently failed to establish a *prima facie* case of obviousness of the subject matter of claim 140 over TSANG in view of AMENDOLA.

**j. TSANG in View of AMENDOLA Fails to Render Obvious
Claims 141 and 142**

Claim 141 (which depends from claim 101) and claim 142 (which depends from claim 135) both recite that the combination container recited in claims 101 and 135 is of a size which is adapted for use with a portable liquid fuel cell for a portable electric or electronic device.

As set forth in detail in section VII.B.2.c. above, both TSANG and AMENDOLA clearly relate to large-scale operations which involve equipment such as reservoirs, tanks, reaction chambers, pumps/valves, heating devices, equipment for transferring hydrogen gas from a reaction chamber to a hydrogen-consuming device, equipment for recycling water, etc. For this reason alone, TSANG in view of AMENDOLA is unable to render obvious a portable fuel cell which necessarily involves relatively small-sized equipment and the handling of relatively small volumes of liquids (and corresponding containers), i.e., volumes which would in no way justify (or even make possible) the operation of pumps, heating devices, gas transfer equipment, etc.

Accordingly, even if one were to assume, *arguendo*, that the subject matter of claims 101 and 135 is rendered obvious by TSANG in view of AMENDOLA, for at least all of the additional reasons set forth above this would clearly not apply to claims 141 and 142, wherefore the Examiner has additionally and independently failed to establish a *prima facie* case of obviousness of the subject matter of claims 141 and 142 over TSANG in view of AMENDOLA.

**k. TSANG in View of AMENDOLA Fails to Render Obvious
Claim 143**

Claim 143 depends from claim 119 and recites that the packaged combination of containers recited in claim 119 is of a size which is adapted for use with a portable liquid fuel cell for a portable electric or electronic device.

As set forth in detail in section VII.B.2.c. above, both TSANG and AMENDOLA clearly relate to large-scale operations which involve equipment such as reservoirs, tanks, reaction chambers, pumps/valves, heating devices, equipment for transferring hydrogen gas from a reaction chamber to a hydrogen-consuming device, equipment for recycling water, etc. For this reason alone, TSANG in view of AMENDOLA is unable to render obvious a portable fuel cell which necessarily involves relatively small-sized equipment and the handling of relatively small volumes of liquids (and corresponding containers), i.e., volumes which would in no way justify (or even make possible) the operation of pumps, heating devices, gas transfer equipment, etc.

Accordingly, even if one were to assume, *arguendo*, that the subject matter of claim 119 is rendered obvious by TSANG in view of AMENDOLA, for at least all of the additional reasons set forth above this would clearly not apply to claim 143, wherefore the Examiner has independently failed to establish a *prima facie* case of obviousness of the subject matter of claim 143 over TSANG in view of AMENDOLA.

VIII. CONCLUSION

Appellants respectfully submit that for at least all of the foregoing reasons the Examiner has failed to establish a *prima facie* case of obviousness of any of the rejected claims 70-97, 99, 101-116, 119-130 and 132-143 over TSANG in view of AMENDOLA. The Board is, therefore, respectfully requested to reverse the Final Rejection, and to allow the application to issue in its present form.

Respectfully submitted,
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CLAIMS APPENDIX

70. A process for preparing a metal hydride containing liquid from a storage-stable concentrate, wherein the process comprises combining (a) a concentrate which comprises at least one metal hydride compound and a polar solvent and has a hydroxide ion concentration of at least about 7 moles per liter, and not more than about 2 % of the at least one metal hydride compound decomposes when the concentrate is stored for 4 weeks at about 25°C, and (b) a solvent which may be the same as or different from the polar solvent of the concentrate in an amount of at least about 15 % by volume of the concentrate, and wherein the metal hydride containing liquid is for use as a fuel in a direct liquid fuel cell.

71. The process of claim 70, wherein combining (a) and (b) results in a hydroxide ion concentration of not higher than about 6 moles per liter.

72. The process of claim 71, wherein not more than about 0.5 % of the at least one metal hydride compound decomposes when the concentrate is stored for 4 weeks at about 25°C.

73. The process of claim 71, wherein the concentrate comprises the at least one metal hydride compound in a concentration of at least about 3 moles per liter.

74. The process of claim 73, wherein the hydroxide ion concentration in the concentrate is at least about 8 moles per liter.

75. The process of claim 71, wherein the at least one metal hydride compound comprises at least one of NaBH_4 , KBH_4 , LiBH_4 , $\text{Be}(\text{BH}_4)_2$, $\text{Ca}(\text{BH}_4)_2$, $\text{Mg}(\text{BH}_4)_2$, NaCNBH_3 , LiH , NaH , KH , CaH_2 , BeH_2 , MgH_2 , NaAlH_4 , LiAlH_4 , and KAlH_4 .

76. The process of claim 70, wherein the at least one metal hydride compound comprises at least one of NaBH_4 and KBH_4 .

77. The process of claim 70, wherein the concentrate further comprises at least one of LiOH , NaOH , KOH , RbOH , CsOH , $\text{Ca}(\text{OH})_2$, $\text{Mg}(\text{OH})_2$, $\text{Ba}(\text{OH})_2$, and NH_4OH .

78. The process of claim 77, wherein the solvent comprises at least one of water, methanol, ethanol, ethylene glycol, diethylene glycol, glycerol, acetone, methyl ethyl ketone, diethyl ketone, methyl acetate, ethyl acetate, dioxan, tetrahydrofuran, diglyme and triglyme.

79. The process of claim 74, wherein the concentrate comprises water, at least one of NaBH_4 and KBH_4 , and at least one of NaOH and KOH .

80. The process of claim 78, wherein the concentrate, if diluted to a hydroxide ion concentration of about 6 moles per liter, contains at least about 2 moles per liter of the at least one metal hydride compound.

81. The process of claim 70, wherein the concentrate is substantially free of any additives which adversely affect the stability of the at least one metal hydride compound.

82. The process of claim 73, wherein the concentrate is substantially free of plasticizers, detergents and antifreeze.

83. The process of claim 70, wherein the concentrate is substantially free of any stabilizer for the at least one metal hydride compound which is different from a hydroxide ion providing compound.

84. A process for producing a packaged combination for making a fuel which comprises at least one metal hydride compound and a polar solvent and has a hydroxide ion concentration of not higher than about 7 moles per liter, wherein the process comprises providing a container having a first compartment and at least one second compartment, partially or completely filling the first compartment with a concentrate which differs from the fuel at least by comprising only a part of the polar solvent and by having a hydroxide ion concentration which is higher than the hydroxide ion concentration of the fuel, and partially or completely filling the at least one second compartment with an amount of polar solvent which in combination with the concentrate will afford the fuel, and wherein the fuel is suitable as fuel for a direct liquid fuel cell.

85. The process of claim 84, wherein combining the concentrate in the first compartment with the solvent in the at least one second compartment results in a fuel having a hydroxide ion concentration of not higher than about 6 moles per liter.

86. The process of claim 85, wherein the concentrate is such that not more than about 2 % of the at least one metal hydride compound decomposes when the concentrate is stored for 4 weeks at about 25°C.

87. The process of claim 85, wherein the concentrate contains the at least one metal hydride compound in a concentration of at least about 3 moles per liter.

88. The process of claim 84, wherein the at least one metal hydride compound comprises at least one of NaBH_4 , KBH_4 , LiBH_4 , $\text{Be}(\text{BH}_4)_2$, $\text{Ca}(\text{BH}_4)_2$, $\text{Mg}(\text{BH}_4)_2$, NaCNBH_3 , LiH , NaH , KH , CaH_2 , BeH_2 , MgH_2 , NaAlH_4 , LiAlH_4 , and KAlH_4 .

89. The process of claim 88, wherein the concentrate further comprises at least one of LiOH , NaOH , KOH , RbOH , CsOH , $\text{Ca}(\text{OH})_2$, $\text{Mg}(\text{OH})_2$, $\text{Ba}(\text{OH})_2$, and NH_4OH .

90. The process of claim 89, wherein the polar solvent comprises at least one of water, methanol, ethanol, ethylene glycol, diethylene glycol, glycerol, acetone, methyl ethyl ketone, diethyl ketone, methyl acetate, ethyl acetate, dioxan, tetrahydrofuran, diglyme and triglyme.

P24712.A14

91. The process of claim 87, wherein the concentrate comprises water, at least one of NaBH_4 and KBH_4 , and at least one of NaOH and KOH .

92. The process of claim 84, wherein combining the concentrate with the solvent in the at least one second compartment affords a fuel having a concentration of the at least one metal hydride compound of at least about 3 moles per liter.

93. The process of claim 84, wherein the concentrate is substantially free of any additives which adversely affect the stability of the at least one metal hydride compound.

94. The process of claim 84, wherein the concentrate is substantially free of plasticizers, detergents and antifreeze.

95. The process of claim 84, wherein the concentrate is substantially free of any stabilizer for the at least one metal hydride compound which is different from a hydroxide ion providing compound.

96. The process of claim 84, wherein the solvent in the at least one second compartment comprises at least one additive for the fuel.

97. The process of claim 96, wherein the additive is selected from plasticizers, detergents, and antifreeze.

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P24712.A14

99. The process of claim 84, wherein the container is designed to allow a mixing of the concentrate in the first compartment and the polar solvent in the at least one second compartment inside the container.

101. A container for providing a fuel which comprises at least one metal hydride compound and a polar solvent and has a hydroxide ion concentration of not higher than about 7 moles per liter, wherein the container comprises a first compartment and at least one second compartment, the first compartment containing a concentrate which comprises at least one metal hydride compound and a polar solvent and has a hydroxide ion concentration which is higher than the hydroxide ion concentration of the fuel, and the at least one second compartment containing a solvent which is the same as or different from the polar solvent of the concentrate, and wherein combining the solvent in the at least one second compartment and the concentrate in the first compartment affords the fuel, and wherein the fuel is suitable as fuel for a direct liquid fuel cell.

102. The container of claim 101, wherein the container is sealed and allows a mixing of the concentrate and the solvent in the at least one second compartment before discharging same from the container.

103. The container of claim 101, wherein the container is associated with instructions to allow the concentrate and the solvent in the at least one second compartment to mix before discharging same from the container.

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104. The container of claim 101, wherein the first compartment and the at least one second compartment do not surround each other.

105. The container of claim 101, wherein the first compartment is at least partially surrounded by the at least one second compartment.

106. The container of claim 101, wherein the at least one second compartment is at least partially surrounded by the first compartment.

107. The container of claim 101, wherein the concentrate contains the at least one metal hydride compound in a concentration of at least about 3 moles per liter.

108. The container of claim 101, wherein the at least one metal hydride compound comprises at least one of NaBH_4 , KBH_4 , LiBH_4 , $\text{Be}(\text{BH}_4)_2$, $\text{Ca}(\text{BH}_4)_2$, $\text{Mg}(\text{BH}_4)_2$, NaCNBH_3 , LiH , NaH , KH , CaH_2 , BeH_2 , MgH_2 , NaAlH_4 , LiAlH_4 , and KAlH_4 , and the concentrate further comprises at least one of LiOH , NaOH , KOH , RbOH , CsOH , $\text{Ca}(\text{OH})_2$, $\text{Mg}(\text{OH})_2$, $\text{Ba}(\text{OH})_2$, and NH_4OH .

109. The container of claim 108, wherein the polar solvent comprises at least one of water, methanol, ethanol, ethylene glycol, diethylene glycol, glycerol, acetone, methyl ethyl ketone, diethyl ketone, methyl acetate, ethyl acetate, dioxan, tetrahydrofuran, diglyme and triglyme.

P24712.A14

110. The container of claim 101, wherein the concentrate comprises water, at least one of NaBH_4 and KBH_4 , and at least one of NaOH and KOH .

111. The container of claim 110, wherein combining the concentrate with the solvent in the at least one second compartment affords a fuel having a concentration of the at least one metal hydride compound of at least about 2 moles per liter.

112. The container of claim 101, wherein combining the concentrate with the solvent in the at least one second compartment affords a fuel having a concentration of the at least one metal hydride compound of at least about 3 moles per liter.

113. The container of claim 111, wherein the concentrate is substantially free of any additives which adversely affect the stability of the at least one metal hydride compound.

114. The container of claim 101, wherein the concentrate is substantially free of any stabilizer for the at least one metal hydride compound which is different from a hydroxide ion providing compound.

115. The container of claim 113, wherein the solvent in the at least one second compartment comprises at least one additive for the metal hydride containing liquid.

P24712.A14

116. The container of claim 115, wherein the additive is selected from plasticizers, detergents, and antifreeze.

119. A packaged combination for providing a fuel, wherein the combination comprises a first container and at least one second container, the first container containing a concentrate which comprises at least one metal hydride compound and a polar solvent and has a hydroxide ion concentration which is higher than a hydroxide ion concentration of the fuel, and the at least one second container containing a solvent which is the same as or different from the polar solvent in the first container, the solvent in the at least one second container and the concentrate in the first container together affording the fuel, and wherein the fuel is suitable as fuel of a direct liquid fuel cell.

120. The packaged combination of claim 119, wherein the combination is associated with instructions to combine the concentrate in the first container with at least a part of the solvent in the second container.

121. The packaged combination of claim 119, wherein the concentrate contains the at least one metal hydride compound in a concentration of at least about 3 moles per liter.

122. The packaged combination of claim 121, wherein after storing the concentrate for 4 weeks at about 25°C not more than about 2 % of the at least one metal hydride compound has decomposed.

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123. The packaged combination of claim 119, wherein the at least one metal hydride compound comprises at least one of NaBH_4 , KBH_4 , LiBH_4 , $\text{Be}(\text{BH}_4)_2$, $\text{Ca}(\text{BH}_4)_2$, $\text{Mg}(\text{BH}_4)_2$, NaCNBH_3 , LiH , NaH , KH , CaH_2 , BeH_2 , MgH_2 , NaAlH_4 , LiAlH_4 , and KAlH_4 , and the concentrate further comprises at least one of LiOH , NaOH , KOH , RbOH , CsOH , $\text{Ca}(\text{OH})_2$, $\text{Mg}(\text{OH})_2$, $\text{Ba}(\text{OH})_2$, and NH_4OH .

124. The packaged combination of claim 121, wherein the concentrate comprises water, at least one of NaBH_4 and KBH_4 , and at least one of NaOH and KOH .

125. The packaged combination of claim 121, wherein combining the concentrate with the solvent in the at least one second container affords a fuel having a concentration of the at least one metal hydride compound of at least about 2 moles per liter.

126. The packaged combination of claim 119, wherein combining the concentrate with the solvent in the at least one second container affords a fuel having a concentration of the at least one metal hydride compound of at least about 3 moles per liter.

127. The packaged combination of claim 119, wherein the concentrate is substantially free of any additives which adversely affect the stability of the at least one metal hydride compound.

128. The packaged combination of claim 119, wherein the concentrate is substantially free of plasticizers, detergents and antifreeze.

129. The packaged combination of claim 128, wherein the concentrate is substantially free of any stabilizer for the at least one metal hydride compound which is different from a hydroxide ion providing compound.

130. The packaged combination of claim 119, wherein the solvent in the at least one second container comprises at least one additive selected from plasticizers, detergents, and antifreeze.

132. A method of reducing the decomposition of a fuel during storage of the fuel, wherein the method comprises storing the fuel as a concentrate and diluting the concentrate to prepare the fuel only before using the fuel, the concentrate comprising at least one metal hydride compound, a polar solvent, and at least one hydroxide ion providing compound, wherein after storing the concentrate for 4 weeks at about 25°C not more than about 2 % of the at least one metal hydride compound has decomposed, and wherein the fuel is for use as fuel for a direct liquid fuel cell.

133. The method of claim 132, wherein the at least one metal hydride compound comprises at least one of NaBH_4 , KBH_4 , LiBH_4 , LiH , NaH , and KH .

134. The method of claim 133, wherein the concentrate comprises the at least one metal hydride compound in a concentration of at least about 3 moles per liter.

135. A container for making a fuel, wherein the container comprises a first compartment and at least one second compartment, the first compartment containing a concentrate which

P24712.A14

comprises at least one metal hydride compound and a polar solvent and has a hydroxide ion concentration which is higher than a hydroxide ion concentration of the fuel, and the at least one second compartment containing a solvent which may be the same as or different from the polar solvent of the concentrate, the solvent in the at least one second compartment and the concentrate in the first compartment together affording the fuel, and wherein after storing the concentrate for 4 weeks at about 25°C not more than about 2 % of the at least one metal hydride compound has decomposed, the fuel being suitable for use as fuel for a direct liquid fuel cell.

136. The container of claim 135, wherein the concentrate contains the at least one metal hydride compound in a concentration of at least about 3 moles per liter.

137. The container of claim 135, wherein combining the concentrate with the solvent in the at least one second compartment affords a fuel having a concentration of the at least one metal hydride compound of at least about 3 moles per liter.

138. The container of claim 136, wherein combining the concentrate with the solvent in the at least one second compartment affords a fuel having a concentration of the at least one metal hydride compound of at least about 2 moles per liter.

139. A process for filling a liquid fuel cell, wherein the process comprises using the container of claim 101 as a filling device for the fuel cell.

140. The process of claim 84, wherein the direct liquid fuel cell is a portable liquid fuel cell for use with a portable electric or electronic device.

141. The container of claim 101, wherein the container is of a size which is adapted for use with a portable liquid fuel cell for a portable electric or electronic device.

142. The container of claim 135, wherein the container is of a size which is adapted for use with a portable liquid fuel cell for a portable electric or electronic device.

143. The packaged combination of claim 119, wherein the combination is of a size which is adapted for use with a portable liquid fuel cell for a portable electric or electronic device.

P24712.A14

EVIDENCE APPENDIX

None.

P24712.A14

RELATED PROCEEDINGS APPENDIX

None.